

A COSMETIC COMPOSITION BASED ON MENTHOL AND MENTHYL LACTATE, HAVING LITTLE ODOR AND BEING NON-IRRITATING

5 The present invention relates to a freshening cosmetic composition characterized in that it comprises 0.01% to 2% by weight menthol and 0.1% to 10% by weight menthyl lactate, the menthol / menthyl lactate ratio lying in the range 1/3 to 1/10, and being such that the odor of the
10 menthol is barely perceptible, said composition possessing the advantage of not being irritating, in particular for the sensitive parts of the human body, while conserving the various beneficial effects of menthol.

15 Menthol is a compound well known to the person skilled in the art for its analgesic, freshening, and odoriferous properties, and it has often been used in cosmetic and pharmaceutical products. In addition, this substance is used as flavoring in numerous preparations for alimentary
20 use or indeed in toothpastes.

As recommended by the Food and Drug Administration (FDA), an effective quantity of menthol in a composition must lie in the range 1.25% to 16%. Nevertheless, at such
25 concentrations, the flavor and the odor of the substance are very powerful, and that is poorly appreciated by consumers. In addition, this power is illustrated by the fact that menthol has been used in industrial methods for manufacturing refrigerant products (FR 74/27045).

30 Concerning cosmetic compositions, there are numerous compounds capable of giving rise to a cooling effect on the skin. For example, patent DE 24 05 900 describes a composition containing menthol, camphor, and alcohol for

preparing a slimming composition designed to induce metabolism of skin fat by cooling. SU 15 60 215 relates to a composition for treating gingivitis which contains an association of camphor, menthol, thymol, and 5 salicylic acid. CN 90 10 88 731 relates to a composition for repelling mosquitos and comprising, in particular, menthol and camphor.

Compositions specifically based on menthol are described 10 in the documents of the prior art. Nevertheless, given the overwhelming power of menthol, various esters of menthol have been prepared for the purpose of reducing the odorous properties of this substance, but most of such esters possess odors that are very disagreeable, making 15 them unusable in products for local application. In order to obtain satisfactory effectiveness of their analgesic or anti-irritant action, said derivatives are required in quantities that are large. Thus, with an effective 20 quantity of menthol derivatives, said odors constitute a serious obstacle for use as a cosmetic.

One of said derivatives, menthol lactate, is used in pharmaceutical compositions for oral administration for treating diseases such as respiratory deficiencies, the 25 common cold, sinusitis, bronchitis, or asthma. The beneficial properties of menthol lactate are set out, for example, in WO 97/42945.

Menthyl lactate has also been used in cosmetic 30 compositions for local application as a freshener. According to the manufacturers, that compound does not produce the mint odor which characterizes most other menthol derivatives.

Generally, the compound is at concentrations lying in the range 0.1% to 10% in most cosmetic compositions. For example, WO 96/14840 describes analgesic compositions comprising up to 9% menthyl lacate, and US 5 602 178 5 relates to bath products that have no menthol, containing about 6% menthyl lactate. JP 06329528 and JP 10231238 relate to compositions comprising menthol and menthyl lactate in ratios of 1/1 and 2/1 respectively, however at those ratios, those compositions do not deal with the 10 problems associated with the secondary effects of menthol.

Some of the compositions described in the prior art documents can also contain fragrance reproducing the odor of mint. At low levels, mint odor also contributes to the 15 sensation of cooling provided by menthyl lactate. Nevertheless, some of those fragrances can be expensive, and can give rise to other problems of skin tolerance.

The object of the present invention is thus to provide a 20 freshening composition, in particular a composition for cleaning the body, which is freshening and not irritating, and which also feels pleasant and provides a slight odor of freshness. One of the difficulties thus lies in developing a freshening composition based on menthol and 25 on its derivatives while keeping the mint odor at a level that is sufficiently low. This makes it possible, optionally, to add other freshening fragrances that are less powerful and non-irritating.

30 Thus, no document of the prior art describes or suggests the present invention as defined here-below.

Description

The present invention provides a freshening cosmetic composition characterized in that it comprises 0.01% to 2% by weight menthol and 0.1% to 10% by weight menthyl lactate, the menthol / menthyl lactate ratio lying in the range 1/3 to 1/10, and being such that the odor of the menthol is barely perceptible, said composition not being irritating, in particular for the sensitive parts of the human body. This object is more particularly achieved with a menthol / menthyl lactate ratio lying in the range 1/6 to 1/4. Preferably, the ratio is set at about 1/5, and the composition of the invention comprises 0.1% to 0.5% by weight of menthol, and 0.25% to 1% by weight of menthyl lactate.

Advantageously, the composition comprises 0.08% to 0.12% by weight of menthol and 0.45% to 0.55% of menthyl lactate.

No irritation spoils the beneficial freshening effect obtained by associating menthol and menthyl lactate in the concentrations and ratios specified above.

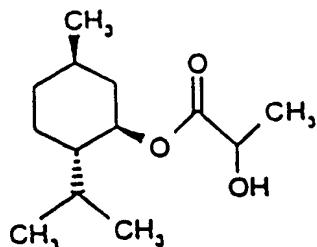
In addition, the "mint" odor due to the menthol is only faintly perceptible, so the composition can further include at least one fragrance, that can be different from or similar to the fragrance of "mint". In this respect, particular mention can be made of the fragrance "glacier SG 809 A" which reproduces the feeling and the odor of freshness at a concentration of 0.5% to 5% by weight, but without being overpowering and/or irritating.

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The general formula of menthyl lactate is as follows:

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This compound contains four asymmetrical carbon atoms. It therefore exists in 16 different stereoisomers. In the context of the invention, the term "menthyl lactate" thus covers not only all such stereoisomers, but also any racemate or mixture of said stereoisomers.

The composition of the invention can also comprise at least one surface-active agent selected from anionic surface-active agents, preferably sodium cocoyl isethionate, at a concentration in the range 1% to 10% by weight, at least one thickening agent selected in particular from xantham gums, carbomers, preferably hydroxypropyl methylcellulose at a concentration lying in the range 0.2% to 10% by weight, and at least one conditioning polymer at a concentration lying in the range 0.25% to 2% by weight.

The said composition can also comprise a lustering agent, preferably a mixture of sodium laureth sulfate and of glycol distearate, at a concentration lying in the range 0.1% to 1% by weight, a foaming agent, preferably lauryl betaine, at a concentration lying in the range 1% to 10% by weight, an association of surface active agents such as

5 betaine, at a concentration lying in the range 1% to 10% by weight, an association of surface active agents such as sodium laureth sulfate, ammonium laureth sulfate, lauryl glucoside, such that the total concentration of surface active agent in the composition lies in the range 5% to 30%, and preferably in the range 15% to 25% by weight, and/or at least one hydrating agent, in particular glycerol and/or polyethylene glycol, at a concentration lying in the range 1% to 20% by weight.

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Naturally, the composition of the invention is not limited to the ingredients mentioned above. For example, it can also contain a buffer, a dye, an anti-oxidant, and/or a preservative.

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In a preferred implementation of the present invention, the composition is intended for use as a shower gel.

In this case, the composition of the invention may have the following compounds in percentage by weight:

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- Water	62,92 %
- Sodium laureth sulfate	12 %
- Hydroxypropyl methylcellulose	0,5 %
- Sodium cocoyl isethionate	7 %
25 - Ammonium lauryl sulfate	3 %
- Lauryl glucoside	1 %
- Lauryl betaine	4 %
- Polyquaternium-10	5 %
- Polyethylene glycol (PEG)	2 %
30 - Preservative(s)	0,5 %
- Fragrance	1,5 %
- Menthyl lactate	0,5 %
- Menthol	0,08%

5 The present invention also provides the use of the above-defined composition as a product for washing with, in particular as a two-in-one product for simultaneously cleaning and freshening the skin, in particular as a shower gel or as a foaming gel for the face.

10 **Example 1: freshening shower gel with pH 5.5**

The preferred shower gel of the invention comprises the following compounds in percentage by weight:

	Compounds	% Activity	% by weight	% by weight active
15	- Water		62,92	
	- Sodium laureth sulfate	70	12	8,4
	- Hydroxypropyl methylcellulose	100	0,5	0,5
	- Sodium cocoyl isethionate	100	7	7
	- Ammonium lauryl sulfate	70	3	2,1
20	- Lauryl glucoside	50	1	0,5
	- Lauryl betaine	30	4	1,2
	- Polyquaternium-10	10	5	0,5
	- Polyethylene glycol (PEG)	100	2	2
	- Preservative(s)	100	0,5	0,5
25	- Fragrance	100	1,5	1,5
	- Menthyl lactate	100	0,5	0,5
	- Menthol	100	0,08	0,08

30 **Example 2: comparison of the feeling of freshness**

obtained with various products (refreshing shower gel at pH 5.5)

Table 1: Products tested

Product	Isopulegol	Menthol	Menthyl lactate	"Glacier" fragrance
A	0.5%	0.08%		0.5%
B		0.08%	0.5%	1.0%
C		0.1%	0.25%	1.5%
D		0.08%	0.25%	2%

5 Experimental protocol (blind test):

Products A, B, C, and D were applied to the feet of individuals in a confidential study. 1 ml of each product was spread over the total surface area of a foot, and contact with the product was set at 2 minutes. The

10 product was then rinsed off using warm water, and the feet were dried. The control used in this study consisted in immersing the other foot in water at ambient temperature, and also in water at 4°C for checking the "very cold" parameter. The test was repeated every day for several

15 days.

The refreshing effect of said compositions was evaluated on a linear scale going from 0 (no effect) to 120 (very cold, like ice). This assessment was made immediately 20 after the product had been applied (T0), after the feet had been rinsed and dried (T0'), and then every minute for 5 minutes. In addition to this assessment, an objective evaluation was performed by measuring the temperature of the skin of the feet.

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The results are given in Tables 2 and 3 below and in Figures 1 and 2 hereafter.

Table 2: Cooling effect compared with control

	T0	T0'	T1	T2	T3	T4	T5
A	33.8	33.3	31.8	28.8	25.3	25.3	22.8
B	24.6	33.5	32.7	34.9	22.5	18.2	20.2
C	31	35.6	24	22.3	15.7	16.5	17.7
D	9.8	16.1	16.4	11	8.6	7.5	3

Table 3: Temperature variation relative to control

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	T0	T0'	T1	T2	T3	T4	T5
A	-0.3	-1	-1.2	-1.1	-0.9	-0.7	-0.6
B	-0.02	-0.66	-0.8	-0.9	-0.8	-0.8	-0.7
C	0.16	-0.79	-1.2	-1.2	-1.3	-1.3	-0.9
D	0.25	-0.08	-0.9	-0.9	-0.9	-0.7	-0.7

The result of this study shows that the optimum composition for obtaining the cooling effect corresponds to a menthol / menthyl lactate ratio set at about 1/5, with a menthol content by weight of about 0.08% to 0.1% and a menthyl lactate content by weight of 0.5%.

10 Example 3: study on how the odor of the composition was assessed

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This study set out to determine the optimum ratio between the "mint" scent and the "Glacier" scent in above-described compositions A, B, C, and D. It appears clearly from the assessment of the panel that the "mint" odor, 20 which is very powerful, can give rise to negative feelings above a certain level. This difficulty is eliminated by the menthol / menthyl lactate ratios of the invention, and also by adding the "Glacier" fragrance.

Example 4: in vitro study of eye irritation

Various formulations of the refreshing shower gel type composition having pH 5.5 have been tested to determine 5 potential for irritating the eyes at various concentrations and ratios of menthol and menthyl lactate. The results are given in Table 4 below.

Table 4

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Ingredient	Hetcam 5%	Hetcam 1%
Menthol 0.08%	9.0 ± 2.0 Irritant	6.0 ± 2.3 Moderately irritant
Menthol 0.08% Menthyl lactate 0.5%	8.0 ± 0.0 Moderately irritant	4.0 ± 0.0 Slightly irritant
Menthol 0.1% Menthyl lactate 0.5%	8.0 ± 0.0 Moderately irritant	4.0 ± 2.5 Slightly irritant

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The combinations menthol 0.08% + menthyl lactate 0.5% and menthol 0.1% + menthyl lactate 0.5% which are effective for refreshing the skin are well tolerated by the most sensitive parts of the body.

Example 5: study concerning skin tolerance

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This study was performed to show that the skin tolerates repeated application of the shower gels of the invention. Shower gels as described above, and also baby shampoo used as a reference, were applied to the antero-internal faces of the forearms.

The skin state of the application zone was verified and then humidified lightly using cotton wool moistened with warm water prior to applying the gels by massage that lasted for 10 seconds. A first reading was taken at $T = 2$ 5 minutes. After rinsing in warm water and drying (using absorbant tissue paper), a second reading was performed at $T = 10$ minutes.

Every day the same application was repeated, and a new reading taken.

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The results show that no undesirable effect (no burning sensation, no tingling, no itching, no erythema) occurred after using shower gels of the invention.